

## THE SNOWY OWL MIGRATION OF 1945-46

SECOND REPORT OF THE SNOWY OWL COMMITTEE

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THE Committee's procedure in gathering data on the flight of Snowy Owls (*Nyctea scandiaca*) in the winter of 1945-46 has been essentially the same as that described in its first report, *The Snowy Owl Migration of 1941-42* (1943. *Wils. Bull.*, 55:8-10). The Committee submitted the following questions to cooperators: *When were Snowy Owls first noted in your area during the current autumn and winter? At what period were they most plentiful? What was the total number of owls noted? How many were known to have been killed?* Literally thousands of people, directly or indirectly, contributed to this report, and the Committee takes this opportunity to thank them for their interest and aid. Certain changes in the Committee's personnel have taken place since our first report. The list of members is as follows: *British Columbia*, J. A. Munro, Okanagan, B. C.; *Prairie Provinces*, B. W. Cartwright, 201 Bank of Commerce Chambers, Winnipeg, Manitoba; J. D. Soper; *Ontario*, L. L. Snyder (Chairman), Royal Ontario Museum, Toronto; T. M. Shortt; O. H. Hewitt; *Quebec*, V. C. Wynne-Edwards (now resigned); *Maritime Provinces*, R. W. Tufts, Wolfville, N. S.; *Newfoundland*, H. S. Peters, 54 Folly Rd., Charleston, S. C.; *New England States* (and, tentatively, *Pennsylvania*), A. O. Gross, Bowdoin College, Brunswick, Maine; *Washington, D. C., region*, F. C. Lincoln, Fish and Wildlife Service, Washington, D. C.; *New York State*, G. M. Meade, Trudeau Sanatorium, Trudeau, N. Y.; *Ohio*, L. E. Hicks, Ohio State University, Columbus, Ohio; *Michigan*, C. T. Black, Dept. of Conservation, Lansing; J. Van Tyne; *Central, Western and Northwestern States*, O. S. Pettingill, Jr., Carleton College, Northfield, Minn.

Observers are invited to assist in future surveys by forwarding records to the geographically appropriate committee member. It will be apparent from the list that some sections of the continent are unrepresented or inadequately represented on the Committee; volunteers to organize future surveys in each of several political areas are needed, for example, in Quebec, New Jersey, Pennsylvania, Indiana, Illinois, Wisconsin, the Dakotas, and States of the Northwest.

It is the Committee's object to report briefly on periodic major flights of Snowy Owls from the Arctic to southern, settled parts of the continent. Following the major flight of 1941-42, there was a small flight in the east in the fall and winter of 1942-43; as during the 1941-42 flight, occurrence in the west seemed to be the normal invasion by the species of the Prairie Provinces which takes place prac-

tically every fall and winter. (These facts were determined through routine channels, the Committee taking no collective action that year to gather data through questionnaires.)

Presumably the basic condition for any flight in the east, or a major influx in the west, is an unbalance in the Arctic between the Snowy Owl population and its food supply. It is to be expected that a second migration will occur in the succeeding year if unbalance still exists. The second flight of two in annual sequence would involve fewer owls if their population had suffered depletion, or if a partial correction of unbalance in the owl-food relationship had occurred in the Arctic.

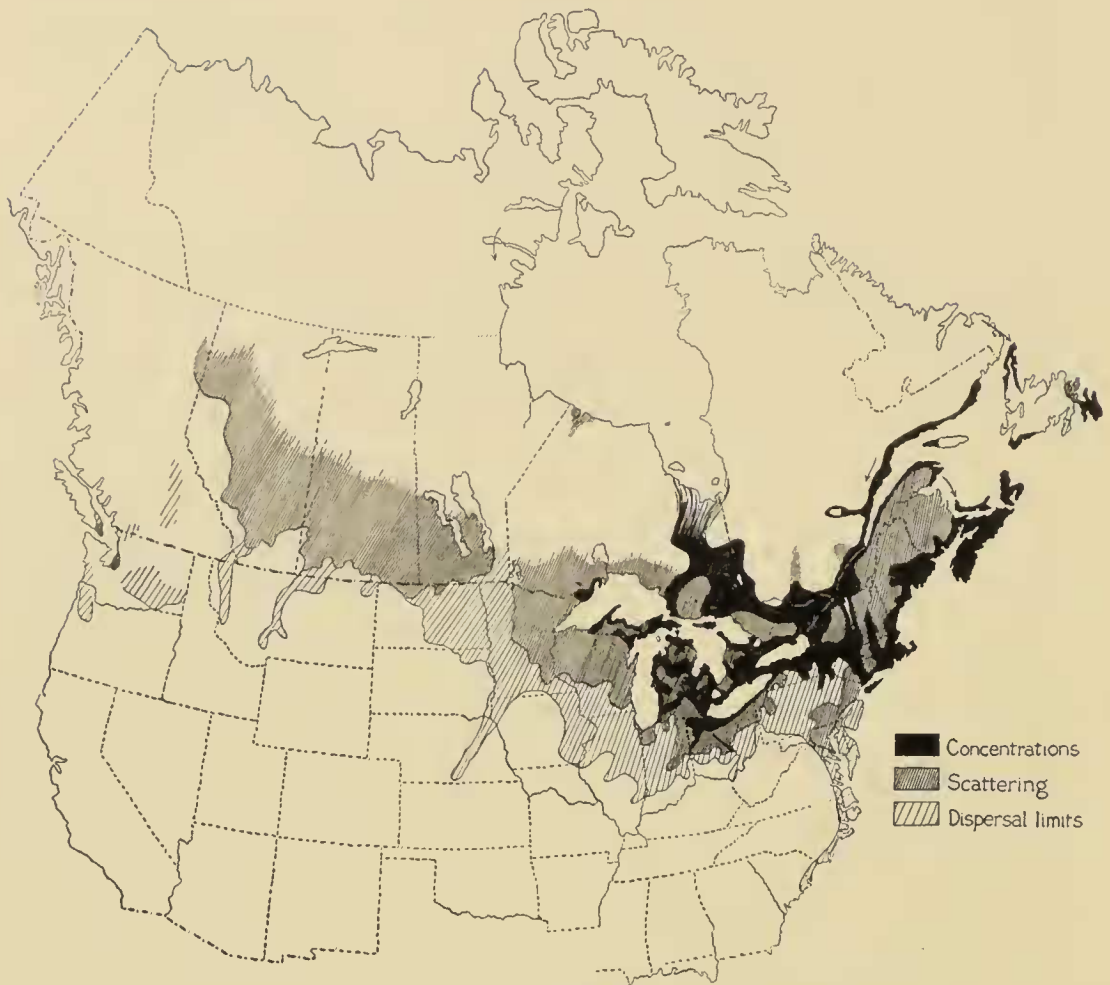
#### TIMING AND VELOCITY OF THE 1945-46 FLIGHT

It became evident early in the autumn of 1945 that Snowy Owls were invading settled parts of eastern North America and that a heavy influx was a probability in the west. Consequently, the Committee began gathering data on the flight. Records were sought throughout the transcontinental area over which previous flights were known to have spread. Our organization is obviously imperfect and the results of its work correspondingly so. We can be sure that proportionately more owls are observed in areas where there are more observers, and that some areas are inadequately surveyed. But general knowledge makes possible an approach to correct evaluation of regional reports.

The earliest reported occurrence of a migrant Snowy Owl in the autumn of 1945 came from the eastern part of the continent, namely Kezar Falls, Maine, on September 15. Incidentally, this appears to be the earliest (seasonal) occurrence in the history of Snowy Owl flights in New England. The next record was for September 20, at Stratton, Maine. Additional September records (without exact dates) came from Clova, southern Quebec; Biscotasing, central Ontario; and Thesalon (on the North Channel of Lake Huron), Algoma District, Ontario. Other first occurrences in the east that demonstrate the progressive spread of forerunners of the flight are: Manitou Island (in Lake Superior, off Keweenaw Point), Michigan, October 1; East Saugatuck, southwestern Michigan, "early October"; Sioux Lookout, western Ontario, October 9; Winthrop, Massachusetts, October 10; Two Creeks, Wisconsin, "early October"; northern counties of New York, October 20; Monroe County, southeastern Michigan, October 23; northern Ohio, October 30.

Forerunners of the flight in settled parts of the west were recorded on later dates than in the east. First occurrences reported are as follows: Lenore, southern Manitoba, October 4; Weyburn, southeastern Saskatchewan, October 4; Calgary, southern Alberta, October 9; Bottineau, North Dakota, October 14.

Over a period, varying with the district, from six weeks to more than two months, there was a gradual increase in the number of re-



Map 1. Snowy Owl flight of 1945-46.

gional first-appearance reports and in the number of owls observed within each of the several sub-regions, both eastern and western. Estimates of peak periods in the sub-regions are as follows: Maine, last week of November; Massachusetts, first week of December; southern Quebec, late November; New York State, first week of December; central Ontario, mid-November; southern Ontario, late November to early December; northern Michigan, mid-November; southern Michigan, early December; Minnesota, latter half of November; southern Manitoba, late December; southern Saskatchewan, late December; southern Alberta, late December.

The limits of the flight of 1945-46, reached in the form of spurs, or outlying "islands," were as follows: one, Charleston, South Carolina, January 24; one, Lawrence County, Ohio (no date); one, Ripley County, Indiana (no date); one, Clay County, Illinois (January?); one, near Springfield, Illinois, January 27; one, Hancock County, Illinois, December 16; one, Ottumwa, Iowa, February 22; one, 18 miles southwest of Hastings, Nebraska, February 17; and occurrences (particulars unknown) in southwestern Montana (mid-November), southeastern Washington (November 30), and northwestern Oregon (mid-



November). A number of reports of Snowy Owls boarding ships at sea were received; one such occurrence was "320 miles off Newfoundland."

#### NUMBERS AND MORTALITY

The migration of 1945-46 may have involved more owls than any flight on record. Gross (1927. *Auk* 44:479-493) reported a total of 2,363 owls for 21 States during the great flight of 1926-27. The Committee's total for the same 21 States during the 1945-46 flight is 7,280. However, we cannot be certain that the 1945-46 flight actually involved approximately three times as many owls as the 1926-27 flight, since the compilation of records for the earlier flight was a one-man effort.

The grand total of Snowy Owl occurrences compiled by the Committee for the 1945-46 flight is 14,409, of which 4,475 were reported killed. In all probability the mortality would be considerably higher than the approximate one-out-of-three ratio indicated, since an owl killed is automatically removed from further tallying, but a live owl may be counted more than once. The highest mortality record came from New York State, where 839 owls were killed out of 1,104 reported, or approximately three out of four. But here again no great stress should be placed on the figures, since the compilation of records in New York State rested largely on reports from taxidermists. Further, it appeared from the reports to the Committee that a smaller proportion of owls are killed in the west than in the east.

Perhaps the most that can be said on the basis of our statistics is that the destruction of Snowy Owls on this flight, as in previous flights, was heavy. Since the history of Snowy Owl flights suggests that the species has been repeatedly subjected to heavy destruction while wintering in southern latitudes, and yet the last flight appears to be the largest on record, it is obvious that the Snowy Owl population can withstand such treatment.

#### DIRECTION OF FLIGHT AND DISTRIBUTION

The main source of the migrating owls was again apparently the eastern Arctic, from the Boothia Peninsula through Baffin Island and the northern portion of Ungava. Practically all of the Hudson's Bay Company representatives at posts in this region noted an increase in Snowy Owls in their 1944-45 reports and a reduction (an exodus) in their November 1945 reports. There was but slight indication of increase in numbers at this period in the western Arctic, on western Victoria Island, and at the western end of Coronation Gulf.

In general, the flight fanned out from its source in the Arctic but moved progressively southward and westward. Reports from local

observers in eastern North America concerning the direction of flight add detail to the picture. Owls entered Newfoundland at the extreme north; their point of entry into the Maritime Provinces was at Tignish, Prince County, Prince Edward Island; they appeared to move from the east southwestward in Quebec along the St. Lawrence, though obviously some moved south through the interior of that Province; a line of flight seemed apparent from James Bay southward in Ontario; the major points of entry into Michigan appeared to be Chippewa County in the north, Saginaw Bay and the Port Huron-Detroit region in the east; the invasion entered Ohio from the north, west of Lake Erie, and New York State from the St. Lawrence River region (Jefferson, St. Lawrence, and Clinton counties).

In the west, no such clear lines of flight were apparent. A single report from Baker Lake in Northwest Territories states that large numbers of Snowy Owls passed through there "early in November" (indicated by a single arrow on the accompanying map). The invasion of the northern prairies was apparently on a wide front. The Committee's data do not suggest either source or direction of the flight in British Columbia or the northwestern States.

The 1945-46 pattern of concentration-areas in the east is essentially the same as that in 1941-42 though salients will be evident if the maps of the two flights are compared. The limits of dispersal of the 1945-46 flight are considerably farther south than in 1941-42, and the flight involved the west. (Since only the normal influx was evident in the west during the fall and winter of 1941-42, that region was omitted from the Committee's first report and map.) The map for 1945-46 shows a true scattering of the flight on the northern prairies in contrast with the concentration in the east between the great forested areas and along inland shores, valleys, the Great Lakes, and the sea coast. Since Snowy Owls frequent open cultivated farmland, forest clearings, barrens, and shore areas, the concentration and scatter areas shown on the map are probably real, not a reflection of the distribution of observers.

Since the numerically larger flight of 1945-46 produced occurrences much farther from the source than any reported in 1941-42 and since the flight involved the west as well as the east, there would appear to be a correlation between the number of owls, the distance they will travel, and the geographical area over which they will spread.

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